

Remarks

Claims 2, 3, 9, 16-19, and 23 have been amended. Applicant appreciates the Examiner's indication of allowance of claims 15, 20-22, and 43-50 and the allowability of claims 2, 3, 9, 17, and 23-42. Reconsideration of this application in light of the above amendments and the following remarks is requested.

I. Claim Objections

Claims 23-42 were objected to because of an informality in the language of claim 23. Claim 23 has been amended to correct the informality, and thus withdrawal of the objection to claim 23 and claims 24-42 dependent therefrom is requested.

II. Rejection Under 35 U.S.C. §103

Claim 1

Claim 1 recites the following:

1. A method of forming a dual damascene opening, comprising the steps of:
providing a structure having an overlying exposed conductive layer formed thereover;
forming a dielectric layer over the exposed conductive layer;
forming an anti-reflective coating layer over the dielectric layer;
etching the anti-reflective layer and the dielectric layer using a via opening process to form an initial via exposing a portion of the conductive layer;
forming a protective film portion over at least the exposed portion of the conductive layer, the protective film portion being comprised of the elements C and H; and
patterning the anti-reflective coating layer and the dielectric layer to reduce the initial via to a reduced via and to form a trench opening substantially centered over the reduced via; the trench opening and the reduced via comprising the dual damascene opening.

Claim 1 was rejected under 35 U.S.C. § 103 as being anticipated by U.S. Patent Application No. 2004/0166669 to Saito ("Saito") in view of U.S. Patent Application No. 2003/0054629 to Kawai et al. ("Kawai"). Applicants traverse this rejection on the grounds that these references are defective in establishing a prima facie case of obviousness with respect to claim 1.

As the PTO recognizes in MPEP § 2142:

... The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness...

It is submitted that, in the present case, the examiner has not factually supported a prima facie case of obviousness for the following, mutually exclusive, reasons.

1. Even When Combined, the References Do Not Teach the Claimed Subject Matter

The Saito and Kawai references cannot be applied to reject claim 1 under 35 U.S.C. § 103 which provides that:

A patent may not be obtained ... if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains ... (Emphasis added)

Thus, when evaluating a claim for determining obviousness, all limitations of the claim must be evaluated. However, since neither Saito and Kawai teaches forming a protective film portion “comprised of the elements C and H” over at least an “exposed portion of the conductive layer” as is claimed in claim 1, it is impossible to render the subject matter of claim 1 as a whole obvious, and the explicit terms of the statute cannot be met.

With regard to the claim 1 limitation of “forming a protective film portion over at least the exposed portion of the conductive layer, the protective film portion being comprised of the elements C and H,” the Examiner stated the following:

Saito discloses...forming a protective film portion (4) over at least the exposed portion of the conductive layer (Page 2, Paragraph [0029]), the protective film portion being comprised of the elements C and H;
Office Action dated 8/23/2005, Pages 2-3.

Applicants respectfully disagree. For example, the cited passage of Saito recites the following:

[0029] Subsequently, as shown in FIG. 1C, a conductive polymeric member 4 is formed only in the via hole 3 by electrolysis. The burying of the conductive polymeric member 4 is stopped at a top surface of the interlayer insulating film 2 by adjusting the time of the electrolysis. For example, the conductive polymeric member 4 is made of a conductive polymer such as an aniline, pyrrole, or thiophene polymer. The pyrrole polymer is formed by electrolyzing a pyrrole monomer of 0.14 mol/l and a p-toluenesulfonate of 0.05 mol/l in a propylene carbonate solution as an electrolyte.

Saito, Paragraph 0029.

The polymeric member (4) disclosed by Saito does not comprise “a protective film” and thus Saito is insufficient to disclose “forming a protective film portion over at least the exposed portion of the conductive layer, the protective film portion being comprised of the elements C and H.”

Thus, the examiner's burden of factually supporting a *prima facie* case of obviousness has clearly not been met, and the rejection of claim 1 under 35 U.S.C. §103 should be withdrawn.

Claims 4-8 and 10-14 depend from and further limit independent claim 1, and thus the same distinctions between Saito and Kawai and the claimed invention in independent claim 1 applies for these claims. Accordingly, withdrawal of the rejections of claims 4-8 and 10-14 is respectfully requested.

III. Allowable Subject Matter

Claims 2, 3, 9, and 17 were objected to as being dependent upon a rejected base claim but were acknowledged as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 3, and 9 have been amended to include all limitations of the base claim and any intervening claims. Thus, claims 2, 3, and 9 are in condition for allowance.

Claim 17 has been amended to correct an incorrect claim dependency. Particularly, claim 17 has been amended to properly depend from independent claim 15. Claim 15 has been allowed, and thus claim 17 is now in condition for allowance and such a notice is respectfully requested.

Claims 16, 18, and 19 have been amended to correct claim dependencies thereof. Particularly, claims 16, 18, and 19 have been amended to properly depend from claim 15. Claim 15 has been allowed, and thus claims 16, 18 and 19 are now in condition for allowance and such a notice is respectfully requested.


Claim 23 has been amended to correct an informality as noted above and has previously been indicated as allowable in the Office Action dated 04/22/2005. Thus, Applicants believe claim 23 and claims 24-42 dependent therefrom are now in condition for allowance and such a notice is respectfully requested.

Claims 15, 20-22, and 43-50 have been allowed.

IV. Conclusion

It is clear from all of the foregoing that claims 1-50 are in condition for allowance. The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,



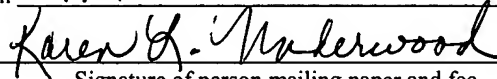
Steven T. McDonald
Registration No. 45,999

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HAYNES AND BOONE, LLP
901 Main Street, Suite 3100
Dallas, Texas 75202-3789
Telephone: 214/739-8644
Facsimile: 214/692-9075

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